The Rapid Equipping Force — Partnering for the Future

Tim Kennedy

For more than 2 years, the Rapid Equipping Force (REF) has worked to swiftly deliver both simple and complex materiel solutions to Soldiers in the field. Recently, the REF has also partnered with program and project managers (PMs) to enable warfighters to get inside the enemy's decision cycle. Headquartered in a cluster of trailer offices at Fort Belvoir, VA, REF "solutions teams" at home and "operational contact teams" in theater connect potential suppliers with the unmet urgent requirements of operational users.

A Soldier lowers a well cam into a water well in Afghanistan to search for hidden weapons caches. (U.S. Army photo.)

The REF teams operating in Afghanistan and working within each Army division in Iraq work directly with deployed units. While they have many duties, the teams all seek answers to two simple questions: what immediate operational requirements are unmet and, if a materiel solution is provided, sometimes in a matter of days for field-engineered solutions, how can this solution be improved?

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Conceived in June 2002 by then U.S. Army Vice Chief of Staff GEN John M. Keane as an experiment, the REF now operates both at Fort Belvoir and overseas with an 88-person staff. Approximately half of the staff members are 179-day augmentees. The REF serves as more than an alternative program management organization. It serves as an "acquisition catalyst" and Army change agent. Typically, REF "leverages" solutions already available in the Army and the private sector to meet the emerging requirements of operational commanders.

"I like to think of it as the REF helping PM shops, laboratories, national labs and the defense industry identify products currently under development or already on the shelf that can be used by soldiers in the field to satisfy their immediate operational needs," says REF Commander COL Gregory Tubbs.

The REF operational contact teams in theater work closely with field commanders on the requirements definition process that results in a materiel solution — often, this is the purchase of needed equipment. In some cases the REF has field-engineered solutions with materials immediately available in theater. These operational contact teams work closely with field commanders to identify requirements and provide materiel solutions. They frequently accompany units on combat missions both to understand requirements and to ensure that the newly provided technology functions properly.

"Our presence in theater and with the Soldier on the ground enables us to provide unique insight to the acquisition side of the house," Tubbs remarked. "We can validate a need on the ground, and with our CONUS presence, quickly determine whether a potential solution is already under development in the PM community. We become the eyes and ears for the acquisition community."

If REF support is appropriate for a commander's requirement, the organization goes to work finding candidate solutions and offering them to the commander for consideration. However, the REF does not necessarily attempt to fulfill 100 percent of the commander's need. "We know time is of the essence for Soldiers in theater. For them, 'close enough' is good enough. This to me is what the term 'spiral development' is all about," Tubbs explained.

The REF's reliance on a rapid, stripped-down spiral development process is ideally suited to the low-intensity combat missions that U.S. forces will likely encounter in the 21st century. "Speed is of the essence when you are confronting an enemy who adjusts his tactics to your responses," Tubbs continued. "If we are going to get inside the enemy's decision cycle and stay there, we need to be able to adjust more quickly than our adversaries."

Since its creation in late 2002, the REF has fulfilled more than 100

A Soldier in Afghanistan uses a "Pocket Terp" to translate phrases. (U.S. Army photo.)

requirements. In some cases, working with existing PMs, it facilitated complex materiel solutions in such areas as intelligence, surveillance and reconnaissance, unmanned aerial vehicles and force protection. In many instances, the REF helped obtain commercial-off-the-shelf (COTS) items that met the commander's requirements. Several examples of REF-fielded technologies include:

- Field kits for explosives detection.
- Lightweight, portable metal detectors suitable for long-range missions.
- Thermal vision devices.
- Inexpensive robots.
- Special shims that enable search teams to nondestructively open padlocked doors where illegal weapons are suspected of being stored.
- Well cameras (small, battery-powered, fish-eye camera and hand-held monitor connected by a long Ethernet cable).
- Wearable vests for ventilation and heat dispersion.
- Mounting brackets on helicopter door-gunner ammo cans.
- Turret cameras for use by Humvee special operations teams in Iraq.

The REF does more than just provide materiel or COTS-based solutions. It also helps to develop and train tactics, techniques and procedures (TTPs) for the newly fielded solution. For example, the REF provided TTPs for the enormously popular "Pocket Terp," a commercially available hand-held computer customized with mission-specific phrases in local dialects.

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An 82nd Airborne Division Soldier displays weapons and ammunition retrieved from a well in Afghanistan using the REF well cam. (U.S. Army photo.)

Forming Partnerships With Army Commands

Last summer, the REF's remarkable ability to shrink the time from requirement to solution from years to weeks caught the attention of Army Chief of Staff GEN Peter J. Schoomaker, who instructed the REF to apply its rapid-equipping methodologies to bring forward Army Future Force technologies that could meet immediate requirements. Schoomaker was particularly keen to have the REF examine emerging capabilities to determine if they could be inserted on the battlefield "now, rather than later." To better serve operational forces before deployment, Schoomaker urged the REF to establish partnerships at key locations within the U.S. Army acquisition community.

Army organizations have a lot to gain by forming partnerships with the REF. "The first thing organizations gain is a new set of tools they don't have within their own process," Tubbs points out. "The REF can be used to explore alternative acquisition processes and alternative products. Likewise, REF partners have direct connectivity to people serving overseas in harm's way. If a PM has something that might work in theater, we have the capability to get it there, train Soldiers how to use it, assess its performance and then suggest improvements," Tubbs continued.

"PMs can also use their REF partnership to refine TRADOC [U.S. Army Training and Doctrine Command] requirements or suggest new requirements that may have been excluded in their initial doctrinal assessment," Tubbs explained. "Through a partnership with REF, the Army can provide better and more current solutions to our warfighters. Additionally, an REF partnership gives PMs the ability to employ nonstandard processes — an REF hallmark — to facilitate

resourcing selected projects," he continued.

"The requirements process that we have today is a process that we've had since the Cold War. Though written with the best of intentions, requirements sometimes do not fully meet the needs of people in the field," maintains BG Jeffrey A. Sorenson, Director for Systems Management and Horizontal Technology Integration, Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASAALT). Sorenson, whose organization works in close partnership with Tubbs and his staff says, "The value of working with the REF is that it works directly with the field and takes input directly from Soldiers. The REF helps us ensure that as requirements come in — we call them operational needs statements — they have received proper 'sanity checks.'"

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"The partnership between my organization and the REF has produced benefits in two areas of mutual interest — getting rapid feedback from Soldiers in the field and renewed emphasis on competition in the acquisition process," Sorenson continued. "However, remember that valuable feedback enjoyed by the REF-ASAALT partnership does not always originate in the field. Our people here in the Pentagon monitor all acquisition programs in the Army to ensure they are funded, supported and working. The REF does not have the infrastructure to do this, so we provide them with this support. Conversely, the REF brings added value to our partnership because they have many contacts with small partners in the public sector — both at home and abroad — that Army program executive offices and PMs would not be directly able to tap into," Sorenson summarized.

Partnering for Success

Regarding the value both partners add to acquisition competition, Tubbs cites the recent procurement of an "electronics system" that the Army will use to defeat improvised explosive devices (IEDs) in the Iraqi theater of operations. "An Army project manager had a program of record that was already well under development," Tubbs explained. "It met some but not all the new counter-IED requirements, so he was looking at developing another item. Unfortunately, he had no program in place for that. We looked at the situation and suggested a simpler program to supply the needed technology and helped speed up the process by finding a COTS-based solution that allowed us to put a product on the ground in 6 weeks. That gave the PM the leverage he needed to both speed up the original program and open up a second program.

"What resulted for the PM was competition that he had never had before in an area where it had theretofore been fairly closed," Tubbs remarked. "And the Army benefited because it now had potential choices of products it could employ immediately, and also had two competing sources for these products." For example, the original vendor had asked $64,000 for each of the new anti-IED devices. This was eight times the price of the COTS version the REF had bought. So the Army benefited in two ways: cost and time savings. "Needless to say, when we informed the first vendor that our second vendor was only charging $8,000 a unit, their price came down significantly," Tubbs said.

Lessons Learned

"I think the biggest lesson learned, on my part, is that there are a lot more potential contracting partners in the U.S. at our disposal than we realize," Sorenson reflected. "Somehow, we need to find ways to encourage these small companies to provide the Army with materiel solutions that we have obviously not been able to tap into. If there's any way that we can do things like that on a quick turnaround basis, we ought to take advantage of it," he continued.

"I'm very enthusiastic about the overall value of my organization's partnership with the REF," Sorenson commented. "I think we need to take what we have with the REF, and expand the partnership horizontally with other Army elements such as the Research and Development Command and the Army Materiel Command. If we can tie all of that together in such a way that we can fully integrate the feedback loop that we are getting from the REF and other Army acquisition elements in the field, we will have a more complete picture of the requirements of people at the pointed end of the spear," Sorenson concluded.

Success Stories

REF success stories abound. Case in point, when Soldiers in Afghanistan reported that they had serious communication problems on missions because

of the radio batteries running down on the Multiband Inter/Intra Team Radio (MBITR), REF operational contact teams assembled battery adapters that connect the MBITR to a single-channel ground and airborne radio system (SINCGARS) 5590 battery via a 12-volt (V) cigarette lighter adapter. Previously, the radios used a series of small batteries that typically only lasted 1 to 2 days on average. For instance, on a 4-day mission, communications were often lost during the latter half of the operation.

On a subsequent mission, of four radio teams, only the team with the REF 5590 adapter still had working radios at the mission's end. Soldiers with the MBITR/5590 battery adapter and power cables now only need to carry one type of battery, which has an existing logistics trail, and provides far more power at less weight. In addition, because of the 12V charger plug in the middle, practically anything else such as satellite phones and laptops can run off of the 5590s. These battery adapters have proven to be combat multipliers and have had immeasurable impact on combat operations in Afghanistan. The power cables allow the expensive standard military equipment to continue operating well beyond the available supply of specialty batteries.

In another rapid fielding initiative, REF operational contact teams in Iraq noticed that Military Police (MPs) on IED sweeps were putting themselves in danger and could use a small, relatively cheap robotic asset to assist in IED identification. In just over 2 weeks, REF designed, fabricated and delivered 3 MarkBot II units into theater for assessment. These COTS, 4-wheel drive, remote-controlled vehicles were equipped with a pan/tilt camera, video transmitter and receiver. MPs had an inexpensive and disposable robot to assist with IED detection. REF then trained the MPs and went with them on IED sweeps using these Bots.

A Soldier in Iraq uses a "PocketTerp" at a checkpoint. (U.S. Army photo.)

While on patrol in Iraq, all Humvees are supposed to be outfitted with turrets. Often, these turrets are homemade plywood or metal mounts for M249 weapons, but they often carry the .50 caliber M2 machine gun or MK19 40mm automatic grenade launcher. These weapons can be equipped with the heavy HOLOgraphic Weapon Sight (HWS) that has a video output connector on the side. In theater, patrols are frequently ambushed and attacked during the conduct of military operations in urban terrain. In August, after soldiers identified a clear need to be able to aim and fire the turret weapon from the Humvee's armor-protected cab, an REF operational contact team proposed running a cable from the HWS video connector to a small TV display inside the vehicle. REF discovered that the HWS had diagnostic outputs that could supply the inputs/outputs for this to work for Soldiers and built a prototype cable, small video monitor and additional prototypes for special operations forces.

In other news, REF operational contact teams identified the need for thermal markers as a means of identifying "friendly" vehicles in Iraq. The REF solution uses a grid of thermoelectric (TE) coolers, which are basically 2-inch solid-state squares that change temperature, hot or cold relevant to ambient, as a function of current flow and direction. By assembling the TE coolers into a 6 by 6 grid, the REF created a vehicle-mounted 36-pixel display visible only through thermal sights. Stryker Brigade has shown significant interest in this system and others under development by the REF.

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